a rise of the pulse-volume and more forcible systolic contraction of the heart. The nervous apparatus of the heart is not influenced by it. After large doses cardiac paralysis with intact sensorium takes place. There is no direct action on the skeletal muscles and no local reaction on injection, as it is rapidly absorbed. Gastric disturbances are very common after both oral and hypodermic administration. The lethal dose is ½ milligramme per kilogramme. Bufonin, in the main, has the same action, but is much weaker, as less soluble; if, however, it be dissolved in dilute alcohol and injected, it may produce systolic arrest of the heart. Chemically, bufotalin differs from the drugs of the digitalis group, in that it is a weak acid.—*Archiv für experimentelle Pathologie und Pharmakologie*, 1902, vol. xlvii.

Action of Demulcents.—Dr. H. J. Tappeiner conducted a large number of experiments on animals and human beings to determine whether the group of drugs known as demulcents really possess the property of allaying irritation. A distinct diminished irritability of motor nerves by chemical salts was found in the presence of mucilaginous substances. The same can also be said of sensory nerves, since pain appeared later and was less intense than in control experiments. The mucous membranes of the eyes and of the intestines gave less evidence of inflammation when demulcents were added. On the other hand, the cathartic action of drugs is enhanced since their irritation is prolonged, owing to slowed absorption. It was also found that this absorption is less active in the stomach and the upper part of the intestines, and that this holds true for water alone. All these experiments prove that the time-honored custom of using the demulcent to allay inflammation and irritation is based upon scientific facts.—*Archives Internationales de Pharmacodynamique et de Therapie*, 1902, vol. x. p. 67.

The Bile and Saponification.—Dr. E. Pflüger discusses the conditions under which saponification occurs and the determination of the relative quantities of fatty acids and of soaps found in biliary mixtures. As ordinarily stated in the text-books, the formation of soaps in the small intestine is brought about by the union of the alkalies of the bile with the fatty acids produced by the splitting up of the fats. In a series of experiments the author has shown that bile in the presence of sodium carbonate and at the body temperature is able to bring about the solution of a considerable quantity of fatty acids. This solution cannot be accomplished without the presence of bile. His researches seemed to indicate that the solutions contained, beside soaps, considerable quantities of fatty acids in a free form. A general review of his last researches indicated that of the fatty acids dissolved in bile mixtures, only the smaller portion, at most 45 per cent., is dissolved through saponification. The author claims to have established the following conclusion, namely, that, strictly speaking, no freely dissolved fatty acids occur in bile mixtures, but that the former are present in a loosely combined state. It is remarkable, from both the physiological and the chemical standpoint, that the fatty acids form soluble acid salts, although there is present in the bile enough alkali to form neutral salts. The reason for this is the fact that the carbon dioxide contained in the sodium carbonate of the bile has a greater affinity for the sodium than have the fatty acids, the neutral salts of which bind more readily a second molecule of fatty acid, although in a loose form. These significant facts make one understand why the transformation of the fatty acids into a soluble form requires one-half as much alkali as has been deemed necessary. The newer researches of the author show that the quantity of saponified fatty acids surpasses that of the freely dissolved fatty acids. Accordingly the provision has been made for the complete binding of all fatty acids by means of the neutral soaps, which are thus transformed into acid salts. The secret of the physiological significance of the bile in promoting the absorption of fats is to be found in the fact that the cholates dissolve the fatty acids, holding them in loose combination, and thus enable them to react with the sodium carbonate and the already formed neutral soaps. The cholates themselves undergoing no decomposition, a small portion of them have the power to bring about the transportation of a large quantity of fatty acids into neutral and acid salts. He showed by his investigations that the greatest quantity of fats that can at any time be absorbed can by means of the bile be made soluble in water. Since the action of the bile consists in the formation of neutral and acid soaps, the soluble form of the fats is the first to be taken into account from the standpoint of absorption. The latter can be accomplished without the intervention of bile; but, since the bile increases to a greater degree, the solubility of soaps, its presence in the jejunum and ileum augments the absorption of the soaps that occur there. It is probably in the epithelial cells that the soaps are retransformed into fatty acids and alkali, the former becoming neutral fat and the latter being taken up by the bloodvessels as sodium carbonate. Thus to the blood is restored the alkali that it has delivered into the intestine for the purposes of saponification. The discovery by Pawlow that the stimulation of the intestinal mucous membrane with acids causes an abundant flow of alkaline pancreatic juice furnishes a wonderful example of the self-regulating mechanism serving the needs of saponification. Moreover, fat itself is a powerful stimulus of the intestinal mucosa, whereby larger quantities of pancreatic juice, rich in steapsin, are secreted; and it is the opinion of Pawlow that fat exercises this power even in a neutral medium. This same investigator seeks the significance of this intimate relationship between acid stimulation and the pancreatic flow, in the fact that the alkali of the pancreatic juice inhibits the action of pepsin, favors the splitting action of the pancreatic enzymes, and restores the normal alkalescence of the blood. According to Pflüger, the excess of acids in the intestine produces a deficiency in the alkalies and consequently inhibits saponification, which, according to the author's law of self-regulation, excites the flow of richly alkaline pancreatic juice.—*Pflüger's Archiv für die gesammte Physiologie*, 1902, vol. xc. p. 1.

Respiratory Action of Some Drugs.—DRS. H. HAYASHI and K. MUTO have been studying some drugs which are known to affect the respiratory apparatus. They found that with curarine the conductivity of the peripheral ends of the motor nerves are diminished. Irritation of the nerve trunks by the secondary coil will still reach the muscle at first, but later, when the cerebral impulse is no longer active, all electricity is ineffective. With fungus poison arrest of respiration takes place owing to paralysis of